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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/602,278	06/23/2000	Jose R. Brunheroto	BC999047/1455p	9149

7590 06/07/2004

Sawyer Law Group LLP
P O Box 51418
Palo Alto, CA 94303

EXAMINER	
SALTARELLI, DOMINIC D	

ART UNIT	PAPER NUMBER
2611	6

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/602,278	BRUNHEROTO ET AL.	
	Examiner	Art Unit	
	Dominic D Saltarelli	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-24 and 26-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-24 and 26-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2, 12-16, 19-24, and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copriviza et al. (5,319,453, of record) [Copriviza] in view of Echeita et al. (5,826,165, of record) [Echeita] and Iggulden (6,597,405, of record).

Regarding claim 2, Copriviza discloses a method for automated monitoring of quality of service of video material being distributed and played (col. 3, lines 50-55), the method comprising, embedding a signature in each frame of the video material by a program source device control (col. 8, lines 26-39) and computing play-out statistics for the video material based on the signature by a program play-out device control (col. 10, lines 35-49).

Copriviza fails to disclose the video material is digital and the signature is produced using a hashing algorithm.

Echeita teaches a method for monitoring quality of service of digital video (col. 1, lines 54-58), making the process much more efficient, as automated monitoring involves the use of digital codes, using digital video removes the need for processing two different types of signals (col. 4, lines 59-66).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Copriviza to monitor digital video material as taught by Echeita, for the advantage of simplifying the process by removing the need to process two different types of signals.

Iggulden discloses utilizing a hashing algorithm to produce a signature for each frame in a video material (col. 6, lines 25-36), allowing the material to be quickly identified in real time.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Copriviza and Echeita to utilize a hashing algorithm to produce the signature for each frame in the digital video material, as taught by Iggulden, during encoding of the digital video material. The reason for doing so would be to make each frame of the video material quickly identifiable in real time.

Regarding claim 12, Copriviza, Echeita, and Iggulden disclose the method of claim 2, and additionally disclose the digital video material further comprises a digital advertisement (Echeita, col. 4, lines 42-45).

Regarding claim 13, Copriviza discloses a system for automated monitoring of quality of service of video material being distributed and played (col. 3, lines 50-55), the system comprising:

a program source of viewing program data (Figure 1, col. 7, lines 7-21) the program source embedding a signature in each frame of digital video material within the viewing program data (col. 8, lines 26-39);

a play-out device (36) for receiving the viewing program data and computing play-out statistics for the digital video material based on the signature (col. 10, lines 35-49); and

a display device (202) coupled to the play-out device (Figure 7) for displaying video output of the viewing program data from the play-out device (col. 10, lines 49-52).

Copriviza fails to disclose the video material is digital and the signature is produced using a hashing algorithm.

Echeita teaches a method for monitoring quality of service of digital video (col. 1, lines 54-58), making the process much more efficient, as automated monitoring involves the use of digital codes, using digital video removes the need for processing two different types of signals (col. 4, lines 59-66).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Copriviza to monitor digital video material as taught by Echeita, for the advantage of simplifying the process by removing the need to process two different types of signals.

Iggulden discloses utilizing a hashing algorithm to produce a signature for each frame in a video material (col. 6, lines 25-36), allowing the material to be quickly identified in real time.

It would have been obvious at the time to a person of ordinary skill in the art to modify the system disclosed by Copriviza and Echeita to utilize a hashing algorithm to produce the signature for each frame in the digital video material, as taught by Iggulden, during encoding of the digital video material. The reason for doing so would be to make each frame quickly identifiable in real time.

Regarding claim 14, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the viewing program data further comprises a cable station program feed (Copriviza, col. 8 line 67 – col. 9 line 1).

Regarding claim 15, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the viewing program data further comprises a satellite program feed (Echeita, col. 4 line 66 – col. 5 line 4).

Regarding claim 16, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the viewing program data further comprises an air wave program feed (Copriviza, col. 8 line 67 – col. 9 line 1).

Regarding claim 19, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the play-out device further comprises a computer (Copriviza, Figure 7, col. 24, lines 26-55).

Regarding claim 20, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the digital video material further comprises a digital advertisement (Echeita, col. 2, lines 28-33).

Regarding claim 21, Copriviza, Echeita, and Iggulden disclose the system of claim 13, and additionally disclose the program source further provides the signature in a meta-stream (Echeita, col. 5, lines 4-14) the meta-stream including an identifier for the digital video material, a length of the digital video material, and a time for play-out of the digital video material.

Regarding claim 22, Copriviza, Echeita, and Iggulden disclose the system of claim 21, and additionally disclose capturing the meta-stream (Echeita, col. 7, lines 43-53), but the combination fails to disclose the play-out statistics are computed by computing a signature for the digital video material and comparing the computed signature to the provided signature.

Iggulden further teaches comparing the computed signature to a known signature (col. 6, lines 25-28) for identifying the video material.

It would have been obvious at the time to a person of ordinary skill in the art to modify the system disclosed by Copriviza and Echeita to compute the play-out statistics by computing a signature for the digital video material and comparing the computed signature to the provided signature, as taught by

Iggulden, for the advantage of computing play-out statistics based on frame signatures without relying upon frame continuity.

Regarding claim 23, Copriviza, Echeita, and Iggulden disclose the system of claim 22, and further disclose identifying a time of play-out of the digital video material (Copriviza, col. 10, line 40), and determining a duration of the digital video material actually played-out (Copriviza, col. 10, lines 39-45). Copriviza, Echeita, and Iggulden also disclose computing a number of frames based on frame signatures (Copriviza, col. 8, lines 26-39) and comparing frame signatures to a known signature (Iggulden, col. 6, lines 25-28) for identification purposes.

The combination of Copriviza, Echeita, and Iggulden fail to disclose computing a number of frames in the digital video material having a match condition with the signature.

Iggulden further teaches computing a signature for video material and comparing the computed signature to a known signature (col. 6, lines 25-28) for identifying the video material.

It would have been obvious at the time to a person of ordinary skill in the art to further modify the system of Copriviza, Echeita, and Iggulden to compute a number of frames in the digital video material having a match condition with the signature, as taught by Iggulden, for the advantage of computing a number of frames based on frame signatures without relying upon frame continuity.

Regarding claim 24, Copriviza, Echeita, and Iggulden disclose the system of claim 23, and further disclose the video play-out device stores the play-out statistics in a local storage (Copriviza, col. 10, lines 39-45) and transmits the play-out statistics to the program source (Copriviza, col. 10, lines 52-54), wherein the program source measures quality of service for the digital video material from automated analysis of the play-out statistics (Copriviza, col 10, lines 55-64)

Regarding claim 26, Copriviza discloses a method for achieving automated monitoring of quality of service of video material play-out in a video distribution and display system (col. 3, lines 50-55), the method comprising embedding video source material at a program source with hidden data (col. 8, lines 26-39) for uniquely marking an advertisement (col. 8, lines 57-59) with the video source material.

Copriviza fails to disclose the video material is digital, embedding the video source material with a meta-stream, isolating the meta-stream and a digital advertisement from the video source material in a program play-out device, and utilizing the meta-stream in the program play-out device to determine play-out statistics for the digital advertisement, and the hidden data comprises a signature generated by a hashing algorithm..

Echeita teaches a method for achieving automated monitoring of quality of service of digital video material (col. 4, line 66 – col. 5 line 4), embedding video source material with a meta-stream (col. 5, lines 4-14) which uniquely marks a

digital advertisement with the video source material, isolating the meta-stream and the digital advertisement from the video source material in a program play-out device (col. 7, lines 43-53), and utilizing the meta-stream in the program play-out device to determine play-out statistics for the digital advertisement (col. 10, lines 48-58). The purpose of using an all digital environment and associating a meta-data stream with the digital video material is so that the complexity of implementing the method is greatly reduced (col. 4, lines 53-66).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Copriviza to use digital video material, embed the video source material with a meta-stream, isolate the meta-stream and digital advertisement from the video source material in a program play-out device, and utlize the meta-stream in the program play-out device to determine play-out statistics for the digital advertisement, as taught by Echeita, for the advantage of reducing the complexity of implementing the method.

Iggulden discloses utilizing a hashing algorithm to produce a signature for each frame in a video material (col. 6, lines 25-36), allowing the material to be quickly identified in real time.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Copriviza and Echeita to utilize a hashing algorithm to produce the signature for each frame in the digital video material, as taught by Iggulden, during encoding of the digital video material. The reason for

doing so would be to make each frame of the video material quickly identifiable in real time.

Regarding claim 27, Copriviza, Echeita, and Iggulden disclose the method of claim 26, and additionally disclose the meta-stream further includes an identifier for the digital advertisement, a number of frames of the digital advertisement, and a time for play-out of the digital advertisement (Echeita, col. 8, lines 10-21, 36-39).

Regarding claim 28, Copriviza, Echeita, and Iggulden disclose the system of claim 27, and additionally disclose the play-out statistics further comprise a start-time of play-out, a number of frames in the digital advertisement correctly decoded, and an end-time of play-out of the digital advertisement (Copriviza, col. 10, lines 39-51 and col. 12, lines 17-23).

Regarding claim 29, Copriviza, Echeita, and Iggulden disclose the system of claim 28, and additionally disclose providing the play-out statistics to the program source (Copriviza, col. 10, lines 52-54) and analyzing the play-out statistics to determine quality of digital advertisement display (Copriviza, col. 55-64).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copriviza, Echeita, and Iggulden as applied to claim 2 above, and further in view of Linnartz (6,570,996, of record).

Regarding claim 3, Copriviza, Echeita, and Iggulden disclose the method of claim 2, but fail to disclose providing a key identifier in a header of the signature and identifying inclusion of the signature based on the key identifier.

Linnartz teaches providing a key identifier in a header of a signature [watermark] (col. 2, lines 37-39) and identifying inclusion of the signature based on the key identifier (col. 2, lines 39-47), increasing the reliability of signature detection (col. 2, lines 60-67).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Copriviza, Echeita, and Iggulden to include a key identifier in a header of the signature and identifying inclusion of the signature based on the key identifier, as taught by Linnartz, for the advantage of increasing the reliability of signature detection.

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copriviza, Echeita, and Iggulden as applied to claim 13 above, and further in view of Caporizzo (5,574,495, of record).

Regarding claim 17, Copriviza, Echeita, and Iggulden disclose the system of claim 13, but fail to disclose the play-out device is a set-top box.

Caporizzo discloses a system for automated monitoring of quality of service wherein the play-out device comprises a set-top box (col. 1, lines 63-66), allowing quality of service measurements to take place within a subscribers home so that the head-end can isolate errors (col. 2, lines 5-10, 34-39).

It would have been obvious at the time to modify the system disclosed by Copriviza, Echeita, and Iggulden to include a set-top box as the play-out device as taught by Caporizzo, for the advantage of allowing quality of service measurements to take place within a subscribers home so that the head-end can isolate errors.

5. Claims 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copriviza, Echeita, and Iggulden as applied to claim 2, and further in view of Goodman et al. (6,173,271, of record) [Goodman].

Regarding claim 4, Copriviza, Echeita, and Iggulden disclose the method of claim 2, and additionally disclose embedding further comprises creating a meta-stream for the digital video material (Echeita, col. 5, lines 4-14) and provide a means for decrypting packets (Echeita, Figure 2, item 64, col. 6, lines 52-54). Copriviza, Echeita, and Iggulden fail to disclose encrypting the meta-data stream.

Goodman discloses encrypting video identification elements (col. 9 line 60 – col. 10 line 3) in order to preserve the security of the method.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Copriviza, Echeita, and Iggulden to include

encrypting the meta-stream (Goodman, col. 10, lines 4-20) as taught by Goodman, for the advantage of preserving the security of the method.

Regarding claim 5, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 4, and additionally disclose the meta-stream further comprises a header session (Echeita, col. 6, lines 46-48).

Regarding claim 6, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 5, and additionally disclose the header session comprises an identifier, a length, and a time of play-out of the digital video material (Copriviza, col. 10, lines 39-51 and col. 12, lines 17-23).

Regarding claim 7, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 4, and additionally disclose the step of computing statistics further comprises capturing the meta-data stream (Echeita, col. 7, lines 43-53) and computing the signature for an incoming stream of digital video material (Copriviza, col. 9, lines 24-35).

Regarding claim 8, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 7, but fail to disclose utilizing the signature of the meta-stream to trigger comparison with the computed signature of the incoming stream of digital video material.

Iggulden discloses event markers which trigger comparison of known signatures with the signatures of an incoming stream of video material (col. 6, lines 25-36), allowing the method to only perform comparison calculations when necessary.

It would have been obvious at the time to a person of ordinary skill in the art to further modify the method disclosed by Copriviza, Echeita, Iggulden, and Goodman to utilize the signature of the meta-stream to trigger comparison with the computed signature of the incoming stream of digital video material, as taught by Iggulden, for the advantage of only performing comparison calculations when necessary.

Regarding claim 9, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 8, and further disclose identifying a time of play-out for the video stream (Copriviza, col. 10, line 40) and determining a duration of the digital video material played-out (Copriviza, col. 10, lines 61-64).

Copriviza, Echeita, Iggulden, and Goodman also disclose computing a number of frames based on frame signatures (Copriviza, col. 8, lines 26-39).

Copriviza, Echeita, Iggulden, and Goodman fail to disclose computing a number of frames having a matching signature to the computed signature.

Iggulden teaches comparing signatures of video frames to a known signature to identify them through matching (col. 6, lines 32-36).

It would have been obvious at the time to a person of ordinary skill in the art to further modify the method disclosed by Copriviza, Echeita, Iggulden, and Goodman compare signatures of video frames with a computed signature to match them, as taught by Iggulden, in order to compute the number of frames having a matching signature to the computed signature, for the advantage of determining the number of frames received without relying upon frame continuity.

Regarding claim 10, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 9, and further disclose storing the play-out statistics on a local storage device for the play-out device control (Copriviza, col. 10, lines 39-45).

Regarding claim 11, Copriviza, Echeita, Iggulden, and Goodman disclose the method of claim 10, and further disclose transmitting the play-out statistics back to the program source device control for quality of service measurements (Copriviza, col. 10, lines 55-64).

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copriviza, Echeita, and Iggulden as applied to claim 13, and further in view of Goodman.

Regarding claim 18, Copriviza, Echeita, and Iggulden disclose the system of claim 13, but fail to disclose the play-out device further comprises a play out device within a cable head-end.

Goodman discloses a head-end (Figure 1B, item 100) that includes decoder (141) for computing play-out statistics (col. 9, lines 47-59), centralizing the equipment used in the system.

It would have been obvious at the time to a person of ordinary skill in the art to further modify the system of Copriviza and Echeita to include a play-out device within a cable head-end, as taught by Goodman, for the advantage of centralizing the equipment used in a quality of service monitoring system.

Response to Arguments

7. Applicant's arguments filed April 16, 2004 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

On page 11, lines 7-11 and 18-21, applicant argues that Iggulden fails to teach or suggest using a hashing algorithm to produce a signature in each frame. It is Copriviza who teaches adding a signature to each frame (col. 8, lines 26-39). Iggulden teaches

generating signatures using hash codes, which has the inherent and well known benefit of high speed locating of representative data objects when hash codes are used. It is the combination of Copriviza and Iggulden which meets the limitation of using a hashing algorithm to produce a signature in each frame.

Further, on page 12, lines 1-5, applicant argues that Iggulden fails to teach or suggest using a hash code signature of digital television signals. Iggulden states that the signature is based on selected bits within one or more digital frames. A hashing function which generates a hash code for digital frame data is to select certain bits from the digital frame data, said selected bits thus strung together are the hash code. The reasoning being that if the same bits are selected and strung together for two or more unlike digital frames, the resultant digital words would be unique, and thus useable to uniquely identify their respective frames. Thus the method for generating signatures for digital frames described by Iggulden is in fact a hashing function.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dominic D Saltarelli whose telephone number is (703) 305-8660. The examiner can normally be reached on M-F 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (703)305-4038. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dominic Saltarelli
Patent Examiner
Art Unit 2611

DS

HAI TRAN
PATENT EXAMINER